PROGRESS REPORTS

FROM

EXPERIMENT STATIONS

SEASON 1953-54

SURVEY OF REPORTS

PUBLISHED BY
THE EMPIRE COTTON GROWING CORPORATION,
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PROGRESS REPORTS FROM EXPERIMENT STATIONS. SEASON 1953-54

A full list of the reports published for the season 1953-54 is given below; the price post free is 7/6d. for the set of 12, or 9d. each for individual reports.

1. Cotton Research Station, Namulonge, Uganda.
   (a) Sectional Reports.
   (b) Review of the Research Programme.
2. Anglo-Egyptian Sudan.
3. Kenya—Nyanza Province.
4. Tanganyika—Lake Province.
5. „ —Eastern Province.
6. Nyasaland.
7. Southern Rhodesia.
8. Northern Nigeria.
9. Aden.
10. West Indies.
11. Queensland, Australia.
12. Survey of Reports for 1953-54.

NOTE.

The progress reports published for the season 1953-54 cover four aspects of the Corporation's work.

(1) The report from the Cotton Research Station at Namulonge in Uganda. This is the only station at which members of the Corporation's staff are working which can be described as a Corporation Station. It is staffed by the Corporation, who finance it with the aid of grants made by the Colonial Office and the Governments of Uganda, Tanganyika, Nigeria, Kenya, Nyasaland and the Anglo-Egyptian Sudan.

(2) At other stations, in the Sudan, Kenya, Tanganyika, Nyasaland, Nigeria and the West Indies, members of the Corporation's staff are working on Government Experiment Stations, and are provided by the Governments concerned with housing and laboratory facilities and local field staff.

(3) The report from Aden has been contributed by a former member of the Corporation's staff with long experience in the Sudan, who was seconded to Aden by the Corporation for two seasons in order to help to establish the new cotton growing industry on sound lines, and who subsequently transferred to the service of the Abyan Board.

(4) Reports from Queensland and Southern Rhodesia have been written by staff employed by the countries concerned and not by officers of the Corporation. They have, however, been included in this series, by courtesy of the Governments, in view of the fact that the present work is a continuation of cotton research work started many years ago by the Corporation.

SURVEY OF PROGRESS REPORTS FOR THE SEASON 1953-54

BY

J. B. HUTCHINSON.

General.

Record crops were reaped in three territories in the year under review, Nigeria, Tanganyika and Aden. In all three the progress achieved was the continuation of a steady trend and not the consequence of an exceptionally favourable season. Aden only recently became a cotton producer, and the spectacular increase from 120 bales in 1948-49 to 20,000 bales in 1953-54 is most satisfactory. Being a flood irrigated crop, the prospects of further increase are limited by the water available. In both Nigeria and Tanganyika crop prospects are less strictly circumscribed. In Nigeria the area under the crop is extending, and considerable further spread is possible. Yield per acre has been improved by the issue of 26C, and increases from improved agricultural practices and better pest control may be hoped for. In Tanganyika there has been an extensive spread into new and high yielding areas south of Lake Victoria, but both improved strains and improved husbandry have also made important contributions to the increase in the crop, the value of the new seed stocks being particularly striking.

Crop Husbandry.

The emphasis on timely planting noted in the last survey is even greater in the current series of reports. At Namulonge it was recorded that even in a season of good and long continued rains, cotton sown late still suffered the drop in yield associated with late sowing in other, drier seasons. Though there were occasional exceptions to this rule, it held so widely that one must conclude that more is involved in timely sowing than moisture supplies.

Fertilizer work at both Namulonge and Ukiriguru demonstrated the importance of the interaction of phosphate and nitrogen. At both places the increased demand for nitrogen in the phosphate treated plots was striking.

Land use studies were continued in the West Indies, with interesting suggestions for more intensive cropping. As is so often the case, the components of a more intensive farming system are present, but the system remains to be worked out. The importance of cropping throughout the year as a means of reducing weed growth applies also to other areas where growth goes on during the cotton close season.

Cotton Quality.

The most important event of the year in the field of quality studies was the visit of Mr. C. Underwood, of the staff of the Shirley Institute, to the Sudan and East Africa. In experimental work on cotton quality the final verdict lies, and will continue to lie, with the Shirley Institute. It was, therefore, particularly important to obtain the advice and guidance of the Shirley Institute in the early stages of the development of laboratory tests on quality that can be applied at agricultural experiment stations. The discussion of quality problems and their relation to agricultural circumstances, and the joint planning of the experimental programme in lint physiology, were of great value.

Testing techniques developed at Namulonge are showing their value, and the seed damage count as an index of proneness to seed coat nep is coming into general use. Means of estimating proneness to tangled nep were developed at Namulonge, and it is planned to offer a testing service to cotton breeders at other stations.

In all quality studies the influence of the gin must be borne in mind. An improvement in ginning standards was recorded in Kenya following an advisory visit by a ginnery inspector from Tanganyika.

An interesting and important change in quality has followed the change in crop timing in the Lower River in Nyasaland. Under the new régime, ginning outturns are lower than they were before, and this appears to be due to the development of a finer fibre. A considerable increase in yarn strength has resulted, but the fall in ginning outturn is, of course, regarded with disfavour at the ginnery. The disadvantage in the ginnery is, however, greatly outweighed by the agricultural advantages of the new régime, and the net result is a considerable increase in the crop. The remedy for the low ginning outturn figure lies in breeding work.

Entomology.

The dominant impression gained from a study of the entomological reports is of the complexity of the relationships between the crop plant and its pests. At Namulonge and in Northern Nigeria the plant was able to compensate for the damage done by mirids, except when sown too late to allow time for recovery. Evidently in these cases some factor other than the mirid population set a ceiling to the yield obtainable. In Nyasaland, the crop régime that gives good control of red bollworm in the Lower River is inadequate in the Central Areas. At Ukiriguru, in the Lake Province of Tanganyika, the delicate balance between American bollworm and its host plants was demonstrated. When it appears that the breeding of a new and improved sorghum constitutes a potential threat of bollworm damage to the cotton crop, the task of the agricultural scientist is indeed difficult.

There was little further development of control methods during the year. Dusting continues to give good results with American bollworm in eastern Tanganyika, and information has been gained on the conditions under which it will pay in commercial cultivations. The importance of sanitation in ginneries and cotton stores for the control of pink bollworm was again emphasised in the West Indies, and success was reported on an experimental scale in the control of sucking insects in Antigua.

The demand for efficient pest control techniques is likely to increase rather than diminish as success with the cotton crop in good areas stimulates interest in it in marginal areas where pest losses are limiting. Thus with the increase in the Lake Province crop in Tanganyika there has developed a demand for cotton in marginal areas where the crop was given up on account of pest damage. Similarly, pest incidence records from Northern Nigeria showed that pest incidence and the proportion of stained cotton was highest in peripheral areas, which are becoming more important with the increase in the size of the crop.

Plant Pathology.

The use of bactericidal dusts against seed-borne infection with bacterial blight has increased strikingly. Until recently only two countries adopted measures calculated to reduce seed-borne carry-over. In the Sudan the seed was treated with a mercurial dust, and in Southern Rhodesia it was delinted—and incidentally disinfected—with sulphuric acid. In the last few years seed dusting with a copper compound in batch mixers has been extended progressively in Uganda. In the year under review all the seed issued in Kenya and in Aden was dusted, and nearly half that issued in the Lake Province of Tanganyika.

On an experimental scale it has been shown that seed treatment is a worth-while insurance against bad attacks of bacterial blight in Northern Nigeria and in Nyasaland.

Genetics and Plant Breeding.

The comparative value of Egyptian and Upland types was studied in the Sudan, Aden and Nyasaland. In the Sudan, three American types were selected as worthy of further study in the irrigated regions. In Aden, long stapled American types held first and third places in the variety trial. One of these, Wilds Early, had also the advantage of some resistance to wilt. In Nyasaland all data obtained indicate that Egyptians cannot compete with the local Upland varieties.

A seed renewal system was established in Aden. The successive waves of the Uk series were spread further in the Lake Province of Tanganyika, the earliest (Uk46) having now been completely replaced. N17 has finally gone out of cultivation except on the Kenya coast,

having been replaced in South Nyanza, its last area in the Lake Victoria region, by Uk48. In Northern Nigeria the whole of the old Allen seed has now been replaced by 26C, a change which is estimated to be responsible for 20,000 bales of the crop of 135,000 bales. In Uganda a new multiline BP52 stock (NC54) has gone into first multiplication.

The use of modern statistical methods in the assessment of breeding stocks enables the breeder to determine whether potentialities for further improvement remain in his material. There is evidence that further improvement is still possible in current stocks in Uganda BP52, Tanganyika Lake Province material, and Nigerian 26C.

For longer range work, hybrids of the Albar type with local material show promise in a number of territories. Hybrids involving Sudan stocks carrying B_{3m} are of increasing importance in breeding projects where high resistance to bacterial blight is required.

Research Policy.

The programme of the Cotton Research Station, Namulonge, was reviewed during the year. The importance of carrying out a research programme against a background of farming was emphasised, and the significance of the practice of more efficient agricultural systems was demonstrated. The function of the cotton research worker in developing territories is to lead the way in the development of more productive systems involving cotton as a major cash crop, rather than to demonstrate existing systems carried out in a rather more efficient manner.

Received July 1955.

CURRENT COTTON CROPS.

(in bales of 400 lb.)

	Record Crops		*Production*		
	Season	*Amount*	1921-22 (*when the Corporation was established*)	*Average 3 years* 1950-51 to 1952-53	1953-54
Sudan	1950-51	526,592	24,074	438,587	498,482
Uganda	1937-38	417,179	48,290	348,972	398,252
Kenya	1936-37	22,166	417	13,242	17,027
Tanganyika	1953-54	*102,403*	7,175	58,621	*102,403*
Nyasaland	1934-35	21,006	5,422	10,804	11,308
Northern Rhodesia	1925-26	506	80	173	90
Southern Rhodesia	1951-52	9,563	nil	5,605	*2,000*
South Africa and Swaziland ...	1951-52	34,568	2,740	24,215	*23,125*
Nigeria*	1953-54	143,169	15,096	95,306	143,169
West Indies	1940-41	9,312	4,314	5,376	3,766
Australia	1933-34	21,924	3,140	2,826	3,412
Aden	1953-54	21,736	nil	9,185	21,736
Cyprus	1934-35	5,214	1,505	2,699	2,616
Ceylon	1948-49	840	nil	561	*500*
Total	1953-54	*1,227,886*	112,253	1,016,172	*1,227,886*

*Exports only. Figures in italics are estimates.

Note.—Cotton growing in Aden started only in 1948, and the rapid progress made since can be seen from the following production figures.

1948-49	... ...	120 bales
1949-50	... ...	1,587 ,,
1950-51	... ...	9,954 ,,
1951-52	... ...	7,206 ,,
1952-53	... ...	10,396 ,,
1953-54	... ...	21,736 ,,

EMPIRE COTTON GROWING CORPORATION

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List of Publications issued to date. Those still in print can be obtained direct from the Corporation at the above address. Those out of print are marked with an asterisk. The prices include postage.

GENERAL AND TERRITORIAL.

"Cotton Growing within the British Empire and the World's Capacity for Consuming Cotton Goods." J. W. McConnel. 1921. Price **2s.**

* "Cotton Growing in Nigeria." Sir Hector Duff. 1921.

"The Extension of Cotton Cultivation in Tanganyika Territory." Major Hastings Horne. 1922. Price **2s.**

* "Cotton Cultivation in Nyasaland." H. C. Sampson. 1922.

* "Cotton Growing within the British Empire." L. G. Killby. 1924.

"Cotton Growing in South Africa." G. F. Keatinge. 1925. Price **2s.**

"A Cotton Research Station for the British Empire." Professor J. B. Farmer and Mr. L. G. Killby. 1925. Price **2s.**

"Report on the Cotton-Growing Industry in Uganda, Kenya, and the Mwanza District of Tanganyika." Col. C. N. French. 1925. Price **1s. 3d.**

"Memorandum by the Mechanical Transport Sub-Committee." Mr. G. H. Baillie, Mr. R. H. Brackenbury, Col. C. N. French. 1925. Price **2s.**

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* Out of print.

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"Short History of the Empire Cotton Growing Corporation, 1921 to 1950." 1951. Free.

"Empire Cotton Growing Corporation." An illustrated booklet describing the functions and achievements of the Corporation. 1952. Free.

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(March 1955)

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